

# STRUCTURAL BUILDING ASSESSMENT

1800 Garnet Street  
Lynchburg, Virginia



## PREPARED FOR:

Vincent Maden, P.G.  
**BROWNFIELDS PROGRAM COORDINATOR**

**DECEMBER 17, 2021**

DAA Project Number: 2109460



**Draper Aden Associates**  
*Engineering • Surveying • Environmental Services*

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
<b>1.0 ASSESSMENT .....</b>	<b>2</b>

### **APPENDIX A:** Photographs

This report is presented in an electronic version only.

## **EXECUTIVE SUMMARY**

Draper Aden Associates (DAA) was contracted to perform an assessment of the structural condition of the existing building located at 1800 Garnet Street Lynchburg, VA. The purpose of the assessment is to determine the existing structural condition of the structure and note any major issues or items in need of repair. No documentation of the original structure's construction was available, and all observations were of a visual nature with no testing or demolition performed to observe any hidden conditions. DAA performed the condition assessment in general accordance with the scope and limitations of the ASTM E2018-15 "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process".

The building is situated between two railroad tracks and is roughly parallel to the tracks which are oriented in a north-west to south-east alignment. For the purposes of this report the front of the building will be referred to as the north side with the rear of the building and exterior platform being the south side. The primary structure is a cast-in-place concrete system with multiple floors and roof consisting of concrete columns, beams, and floors with a concrete slab roof. The exterior walls at the lower level serving as retaining walls along the railroad (south) side are cast-in-place concrete. The other walls consist of infill masonry around the concrete frame. The lower level has been divided into two levels by the use of a timber wood level of flooring which appears to have been installed some time in the past. A small addition and exterior deck were added at some point along the railroad side of the building. The building was constructed around 1919 with some interior and exterior modifications and expansions over time. The building was formerly used by the Lynchburg Foundry and was identified primarily as a warehouse, office space, and bath house under its foundry use and other commercial/office and warehousing activities during post-foundry operation. The majority of the structure appears to be in good condition with the items noted during this review to be the result of normal wear and weathering of the structure. The exception to this is the exterior deck along the railway. This deck has suffered major deterioration and is beyond reasonable repair measures. The most economical solution would be to remove this portion of the structure.

No significant damage to the main structure was noted during our review. Some areas in the lower level did have exposed reinforcing steel with some appearing to be the result of inadequate cover at the time of construction and some being the result of long-term exposure to moisture. The other area exhibiting signs of weathering and damage were along the exterior wall parapets. Most of the parapet coping has been damaged or removed. This condition allows moisture to infiltrate the top of the wall and can lead to future deterioration of the walls. Due to this condition, some exposed reinforcing steel of the concrete roof structure was also visible but to no significant loss of section was noted.

## **INTRODUCTION**

Per your request, a site visit was made on March 24, 2021, to provide a visual review of the existing structure and provide an assessment of the existing conditions. The review included a walk-through of the interior of the building as well as a visual review of the exterior perimeter of the entire structure.

## **OBSERVATIONS**

### **Interior Observations**

A walk-through of the ground and lower level did not reveal any significant damage to the structure. The lowest level slab on grade appeared to be in good condition and no areas of damage or evidence of movement were observed. The floor surface appeared to be in good condition and no damage was noted. A mid-level has been created between the original lower-level slab on grade and the first concrete framed floor above. This intermediate level is wood framed and is on relatively heavy wood construction. Signage observed on site indicated a capacity of 200 pounds per square foot. The framing appeared to be in good condition except for specific areas along the rear of the building adjacent to the railroad tracks. Some damage due to water and deterioration of the wood framing were visible in this area. A review of the underside of the original second floor level revealed limited areas of exposed reinforcing of the slab. These areas appear to be a combination of insufficient cover of the reinforcing during the original construction and damage due to long term water exposure in other areas. Some cracking of the concrete structural beams and floor slab were observed. Some corrosion

was noted but section loss of the reinforcing appeared to be minor with little or no reduction in the capacity of the structure being expected.

Observations of the third and fourth floor framing did not reveal any visual structural damage. The concrete structure appeared to be sound with no noticeable defects or damage. The underside of the concrete floors and structure were clear of moisture damage and corrosion.

The underside of the concrete roof structure did have several areas of moisture damage and exposed reinforcing. The roofing material has failed and long-term exposure of the concrete slab to water has resulted in some penetration of the roof slab by water. This has resulted in what appears to be minor corrosion of the reinforcing in areas. Section loss of the reinforcing appears to be limited but the required cleaning and removal of unsound concrete to allow repairs will be required to confirm this observation. Access to the main roof was obtained through the penthouse located in the center of the structure. The concrete roof of this structure has issues similar to the main roof, but the roof is sloped, and water damage is less than observed in the primary structure due to water not ponding on the roof slab in this area.

### **Exterior Observations**

The exterior of the building appears to be in fair condition with the exception of the rear concrete and steel platform and ancillary structures. The exterior consists of brick masonry walls which are infilled between the concrete framed structure. There are localized areas of damage to the brick with the most noticeable areas being located on the front north side of the building where attached structures appear to have been removed in the past. Openings at the second and third levels have been blocked in and it appears some coverings of these opening has been removed. Moisture damage to the brick has resulted in damage to the brick in some areas where the bricks have absorbed water and then suffered repeated freeze thaw damage. These areas appear to be limited and located primarily near roof drainage downspouts or other piping supported by the exterior walls. Almost every window of the structure has been damaged to some extent or is missing. The openings allow water and wildlife into the building and are contributing factor to water damage of the structure.

The roofing has failed and much of the perimeter the flashing between the roof and walls has failed also. Debris on the roof has clogged most of the roof drainage and this results in water ponding on the roof in areas. The brick masonry walls extend past the edge of the roof surface and originally had a cast tile coping. The coping served to seal and protect the brick masonry from water along the top and prevent moisture intrusion into the wall system. A significant portion of the tile coping has been damaged or removed. Several loose tiles were observed, and the missing tiles were not present on the roof surface. The failed roofing, flashing and damaged coping are allowing moisture intrusion into the building and are the primary cause of damage to the structure.

### **Recommendations**

To extend the useful life of the structure the building must be protected from the effects of weather. The roof and exterior envelope need to be repaired to prevent moisture intrusion into the building space and structural elements. Drainage from the roof should be collected and directed away from the building at the ground level. The top of the parapet walls should be repaired to prevent water intrusion into the brick masonry walls.

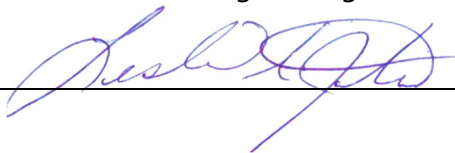
The severely damaged platform at the rear of the building should be demolished and removed. It can not be economically repaired. Beyond this platform on the east end of the building are several small steel frames which should also be removed. These appear to have been some type of equipment or associated item supports.

### **Conclusions**

The primary structure is in overall fair to good condition with only isolated items in need of repair. The main structure appears sound with only minor repairs needed. There does not appear to have been any reduction in the capacity of the original structure.


**Prepared by:**

Name: Leslie S. Jeter, Manager, PE  
Structural Engineering

Signature: 

**Reviewed by:**

Name: Jason A. Judy, PE  
Structural Project Manager

Signature: 

# **APPENDIX A: PHOTOGRAPHS**



*Figure 1 - Posted Capacity of Wood Framing Level*



*Figure 2 - Water Damaged Wood Framing*



*Figure 3 - Typical Wood Framing*



*Figure 4 - Typical Exposed Reinforcing Underside Level 2*



*Figure 5 - Exposed Reinforcing Underside Level 2*



*Figure 6 - Corrosion Reinforcing Underside Level 2*



*Figure 7 - Cracking Framing Underside Level 2 - Likely Due to Reinforcing Corrosion*



*Figure 8 - Underside Level 3*



*Figure 9 - Underside Level 4*



*Figure 10 - Exposed Reinforcing Roof Level*



*Figure 11 - Visible Corrosion Underside Roof Level*



*Figure 12 - Underside Penthouse Roof*



*Figure 13 - Damaged Coping, Flashing and Roof*



*Figure 14 - Damaged Coping and Flashing*



*Figure 15 - Rear Platform*



*Figure 16 - Platform Stairs*



*Figure 17 - Damaged Platform Support Pier*



*Figure 18 - Platform Edge Beam - Total Loss of Section*



*Figure 19 - South Side Structure Off Platform*



*Figure 20 - Steel Support Structure East End of Building*



Figure 21 - Front Exterior of Building



Figure 22 - Infilled Areas of North Side



*Figure 23 - Typical Damaged Brick Masonry & Windows*



*Figure 24 - East End of Building*



*Figure 25 - West End of Building*